Mountain Views

Newsletter of the MLRA 6 Office, Lakewood, CO — January 2000

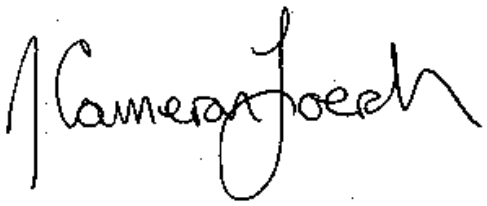
Greetings from Cam

Hello folks, and welcome to the inaugural issue of the Southern Rocky Mountains soil survey region (MO-6) newsletter. Happy holidays and best wishes for the New Year. Since my arrival here last May, there have been rumblings around the office that we were going to be developing a newsletter as part of a process to transfer current information and to improve communications. Well, as they say, here it is and I hope that you enjoy the articles and contributions from the staff here in Lakewood. It is our intent that this newsletter will be a tool for communicating between all of us involved with the soils resource, whether it is in production, technical soil services, utilization, research, or just a hobby. The target audience will be all National Cooperative Soil Survey (NCSS) participants throughout the region, as well as those who use soils resource information in their daily activities. We intend to include contributions from federal, state, and local entities and to report on specific field activities as well as national initiatives. We welcome anyone's comments or suggestions and hope that when asked you will find the time to share your experiences.

As previously mentioned, I began working here in Lakewood about 6 to 7 months ago. I have had the opportunity to meet each individual involved in production soil survey within the MO-6 soil survey region and, along with the excellent staff located here in Lakewood, I am very fortunate to be associated with an *"aw-right"* group of people! I look forward to working with each of you in our efforts to develop and deliver the highest quality soils resource data to our many customers.

As we prepare for the next millennium, most of our efforts these past few months have been spent working on an "internal" organizational structure and in clarifying each others' roles in the soil survey program. During the workshop held last September, we established three "Field Correlation Teams" throughout the region that will be working together on issues related to production soil survey. The teams are made up of individuals working on different active soil surveys within somewhat similar physiographic areas. Each team will serve as a tool or process that encourages communication, interaction, technical soundness, and cooperation, leading to a quality product that each of us can be proud of and support. The diverse makeup of the teams provides the opportunity for coordinating decisions between different survey areas, different states, and varying degrees of expertise, thus diffusing the biases that can occur at political boundaries. Opportunities for multidisciplinary contributions to the decision-making processes will be encouraged. The teams are in place and activities are planned for the new year. I know that I can count on each of you, as it is your contributions that will make this effort a success.

Again, enjoy the newsletter and think of contributions that you can make to the next one.



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Professional Development Workshop Notes

With the advent of MLRA Office's (MO's), automation capabilities at the field level, improvements to utilization of NASIS, and a focus on scientifically sound soils data, its important that we are all on the same page. A workshop was held this past fall including field soil scientists throughout the MO-6 region and Colorado. One of the main objectives of the session was to enable and support decision-making responsibilities at the field level. Other objectives of the workshop included:

- Understand each other's roles in production soil survey
- Establish field project teams
- Transfer updated and improved methods related to:
  - NASIS
  - Manuscripts
  - Map Unit Design
  - Lab Data utilization and access
  - OSD development and checking
  - Map Compilation and,
- Review Research Activities ongoing at Colorado State University.

The workshop included participants that primarily are working on soil surveys on private lands. Federal partners are included as members of the field correlation teams and will be brought into the decision-making process as soil resource inventories continue on federal lands.

Overall, it was felt that the workshop was needed, perhaps overdue, and a good use of time. Some comments from the participants are printed below.

The MO6 Soils Workshop, September, 1999.

★ *This is the best – by far – soils workshop I have attended (in 17 years.)*
★ *I like the new technology we were shown (very useful/exciting!)*
★ *A good informative workshop. Definitely worthwhile.*
★ *Presenters were well prepared. Time was well-used.*
★ *Very very helpful and good handouts. Thanks.*
★ *Just what we needed.*
★ *Very interesting & motivational!*
★ *Great info, very helpful.*
★ *Clear & easy to follow – very helpful. Thanks.*

J.P. Pannell's Newest Title: *Most Effective Taxonomy Reviewer*

Tom Hahn, Soil Data Quality Specialist, Lakewood, CO

As most of us are aware, J.P. Pannell recently celebrated his 50th year of service as a federal employee. Forty-eight of those years have been with USDA's Natural Resources Conservation Service (NRCS) as a soil scientist. J.P. received recognition for this feat from many sources including the President of the United States, Secretary of Agriculture Dan Glickman, NRCS Chief Reed, a Colorado Congressman, and many others. (J.P. is pictured above with Colorado State Conservationist, Steve Black).

In addition to J.P.'s length of service, he has recently earned the informal title of "Most Effective Taxonomy Reviewer." J.P. found another error in the *Keys to Soil Taxonomy*. This time it was for Pachic Udertic Haplustolls. For the benefit of everyone, the corrections follow. J.P. obviously has a promising career ahead of him with this outfit! Some other errors in the 1998 *Keys* are posted on the web page titled "Errata Keys to Soil Taxonomy Eighth Edition" located at *www.statlab.iastate.edu/keytax/1998err.html*

Pachic Udertic Haplustolls - Delete item 1a - the provision for frigid soils was not intended in this class, only mesic and warmer.

Cryepts, Keys to Great Groups - under KCA - 2 make this change "have a base saturation . . . between 25 and 75 cm below the mineral surface "*or immediately above a root limiting layer, if at a shallower depth.*" This change allows soils less than 25 cm deep into the Eutrocryepts class, as always intended.

Who *Is* This Guy?

He's Chris Mueller, the new GIS specialist on the Colorado state staff in Lakewood, Colorado. He comes to us from Salt Lake City, UT where he has been working primarily with soils digital information (SSURGO) development for use with geographic information systems. Chris's main focus here will be providing support to field offices and program managers in utilizing existing digital layers and in creating new ones.

Chris is a Utah native and received a Bachelors degree in geography from the University of Utah in 1994. He has been with the NRCS for about 6 years. We welcome Chris to Colorado and look forward to many successes.

Call for Contributions

We'd like to hear from you!

We will be publishing this newsletter quarterly, and want to print articles on all sorts of topics: technical information, professional development, job-related anecdotes, and reports from training sessions or workshops. What else interests you? Let's print articles written by field scientists, educators, cooperators, managers, and anybody interesting in MO6 and the surrounding areas.

For planning purposes, please let Cam or Carla know when you plan to contribute an article. Please submit contributions electronically to: cgreenad@co.usda.gov

Watch for your name in print!

Coming Up...

We have articles coming from State Soil Scientists in our next three issues. April's issue will feature an article by Bill Broderson (UT), Ken Scheffe (NM) will contribute in August, and Darrell Schroeder (WY) will be writing for the December issue.

Helicopters in the Park

Lee Neve, Soil Survey Project Leader, Trinidad, CO

The making of the Soil Survey of Rocky Mountain National Park (RMNP) was unique in many ways. It was the first time geostatistical methods were used in lieu of conventional soil survey procedures, mostly because large areas in RMNP were inaccessible. After completing field work in the summer of 1997, it became apparent that two significant areas existed (The Mummy Range and Paradise Park) where there were insufficient data to use geostatistics to project lines and complete soil mapping. These two areas were remote; thus, other methods would have to be used to map the areas. To gain access to these remote areas (combined, an estimated 40,000 acres), I suggested the use of helicopters to Lewis Daniels (the state soil scientist at the time). Lewis was surprisingly receptive and suggested that there was enough money in the budget to do so. The next step was getting permission from the National Park Service (NPS).

Prior to requesting permission to use helicopters from the NPS, 16 sites were carefully selected using remote sensing data and aerial photography, ten sites in the Mummy Range and six at Paradise Park. A comprehensive plan was presented to Craig Axtell, the contract officer for NPS in October of 1997. I presented two possible alternatives for mapping the two areas: the use of helicopters for access, or the use of remote sensing data. Craig was receptive to the use of helicopters and helped put together a plan to use contract Forest Service helicopters to cut down on the cost. Craig Axtell eventually obtained approval for the flights in February of 1998.

After obtaining approval from NPS, the next step was to coordinate a plan to sample the 16 sites in two days. Dave Alstatt provided valuable logistics for the operation: how many sites could sampled in a day; how long each site would take; and how to coordinate the helicopter transport of the soil survey teams to each site. The soil survey crew consisted of six individuals who quite cheerfully volunteered for the operation. The Mummy Range was the largest area so the crew was divided into three teams of two. The soil survey crew consisted of Dave Alstatt, Jim Borchert, Jodie Boyce, Lee Neve, Mike Petersen, and Melissa Trenchik. The Paradise Park area was much smaller, but had significantly different geology so crews divided into teams of three. With a well-coordinated plan established, the helicopter trip was set for the second week of July, 1998.

The use of U.S. Forest Service helicopters did not go without complications. The primary use of USFS helicopters was and still is fighting forest fires. That year fires were raging due to an early summer drought, and the helicopter proved unavailable the first week. We were notified by the end of the week that the helicopter would be available the following week. The following Tuesday, flights to the Mummy Range began. The launch area was from Beaver Meadows, approximately 7 miles from sites in the Mummy Range. All crews were transported in minutes to their first site, a two day trip by foot. By mid-afternoon six sites had been completed, but complications arose. The helicopter and crew was called to fight another fire in the Fairplay area. The helicopter crew did return us to the launch site before leaving to fight fires. Even though ten sites were designated, six proved to be enough to finish mapping the area.

The Paradise Park area was put on hold until the last day of the detail. The soil survey crews had finished and were packing up to return home when Craig Axtell notified us that the helicopter would be available on Friday. Everyone agreed to stay another day. We drove to Grand Lake to fly out of the Kawuneeche Valley helipad the following morning. Weather delayed the helicopter flights on Friday morning and the crew waited two hours for a thick bank of fog to break. Eventually all five sites were sampled and crews were on our way home by 4:00 p.m.

The use of helicopters proved to be extremely useful for accumulating additional data and mapping remote areas of the park. The total cost was estimated to be $7,000 for two days. While the cost was high, 40,000 acres of field mapping was completed in a short amount of time. I believe every crew member felt using helicopters was an awesome experience and each would be very willing to do it again.

Publish or Perish?

Alan Price, Soil Data Quality Specialist, Lakewood, CO

From Oct. 31 through Nov. 4 I attended the annual meetings of the Soil Science Society of America (SSSA)/American Society of Agronomy (ASA)/Crop Science Society of America (CSSA) in Salt Lake City, Utah. Even though I have been a member of SSSA for many years, I had not attended the annual meetings since they were in Denver.

For those of you not familiar with these meetings, once a year SSSA, ASA, and CSSA have a combined meeting to present oral and poster papers, conduct business meetings, and interact as professionals with common interests. Literally thousands of papers are presented. Both poster and oral sessions are organized with a theme so attendees can listen and participate in the sessions in which they have the most interest.

If you are currently a member of any of these societies and receive one of their journals, you are painfully aware of the fact that all these societies are dominated by academia with few articles published that relate to soil survey, interpretations, mapping, and the other activities we spend most of our time on. Most of the articles are written by university professors, graduate students, and researchers. They use the societies' publications to present the results of their most recent research. The same authors present almost all of the papers given at the annual meetings.

Because of the domination of the societies by academia, in recent years I became disenchanted with SSSA and considered discontinuing my membership. During the meetings I had the opportunity to visit with Lee Sommers, Director of the Experiment Station, Colorado State University and former president of SSSA. He agreed that most papers are from researchers; he also noted that the reason that more articles and papers are not published on soil survey-related topics is that they are not submitted. In other words, if more field soil scientists would submit field-oriented papers, more would be published in the Soil Science Society Journal (SSSJ), Soil Survey Horizons, or other related publications.

Let's answer the age-old questions: so what and who cares? Why should I go through the sometimes-painful process to publish in SSSJ or present a paper at the annual meeting?

1. You, the expert regarding the soils in your area, can tell a story to the world about your discoveries. People want to know what you know about your soils. If you leave the area, that knowledge is lost unless you share your experiences and conclusions.

2. Preparing a paper allows you to think beyond the boundaries of what we provide in a typical soil survey report. A soil survey report has templates that can limit what we can say about our area.

3. Preparing a paper can stimulate our sometimes forgotten scientific thinking processes. We can and should, for example, think beyond just "What is this soil?" and also consider "Why is it here?" and "How did it get here?"

4. If you are the primary author you may be approved, at government expense, to attend the annual meetings in such exotic places as Minneapolis, MN (2000), Charlotte, NC (2001), and Indianapolis, IN (2002).

5. Publishing in journals and presenting papers at annual meetings can enhance your career opportunities. Selecting officials are often looking for candidates who have gone beyond the typical accomplishments of field soil scientists.

As you prepare and revise your business plans, plan of operations, or whatever we are calling them today, consider programming time to formulate a topic for a paper, gather the data, and write down your thoughts and conclusions. The staff here in Lakewood looks forward to assisting you in this worthwhile task.

How Colorado Celebrated the National Cooperative Soil Survey Centennial

Tim Wheeler, Soil Scientist, Lakewood, CO

The centennial year of the National Cooperative Soil Survey was observed in many ways during this past year. A list of observances that this office knows about is included here. Before we provide a list of this activities, a special thanks is extended to those members of our NRCS staff who contributed to making this a special year.

Lee Neve, Laura Craven, Melissa Trenchik, and Jerry Archuleta helped Tim Wheeler to collect and prepare soil monoliths for use in national displays. Jerry is the Resource Conservationist at Walsenburg. Alan Stuebe was also involved in this activity.

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How Colorado Celebrated the National Cooperative Soil Survey Centennial

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Dennis Moore highlighted the Centennial in a series of presentations to elementary and intermediate schools and to Cub Scouts in Craig. Dave Alstatt and Natalie Pogue also included observance of the Centennial in their presentation to a high school class in Collbran. Jim Borchert used the Last Acre Ceremony for Kit Carson County to observe this special year. Mike Petersen used the Central Great Plains ARS Research Station Field Day in Akron for this purpose.

Laura Craven and Melissa Trenchik used the Colorado *How Soil Surveys Benefit You* display and other displays, and passed out calendars at an educational function and at a county fair; they also prepared newspaper articles. The Longmont Field Office used the Colorado display twice and handed out calendars, bookmarks, and posters at youth organization functions. Don Graffis of the Longmont office was especially involved in these activities.

Jim Borchert, Laura Craven, Beth Fortman, and Tim Wheeler made soil presentations and exhibited soil monoliths at the state fair. Beth is the Soil Conservationist at Pueblo.

Colorado NCSS Centennial Activities

- Collected soil monoliths of the state soil for national displays.
- Collected soil monolith of the state soil for within-state exhibit.
- Exhibited state soil monolith at state fair and various private-sector and public-sector conferences.
- Distributed 2,500 copies of the Centennial planning guide (calendar) to partners, state agencies, and Colorado NRCS.
- Distributed SSSA/USGS/NRCS *Sustaining Soils* booklets, posters and bookmarks at conferences, schools, and state fair.
- Developed and distributed a list of active and retired Colorado soil scientists who have worked on Colorado NCSS projects.
- Earth-day presentations and exhibit of state soil at a public meeting sponsored by the Colorado Geological Society. Included showing the 17-minute Centennial video.
- Distribution by the Colorado NRCS Public Affairs Specialist during Earth Day week of soil-related and other natural resource-related publications, booklets, and other materials on a Denver area college campus and to metropolitan school districts.
- Articles featuring the Centennial and the 50 years of service in the NCSS by Colorado soil scientist J. P. Pannell in the July issue of the Colorado periodical, *Conservation Partnership Update*.
- News releases from Colorado NRCS Public Affairs Specialist highlighting the Centennial.
- News item in the Colorado NRCS newsletter describing the collection of the state soil monoliths.
- Updated for use in Colorado the *How Soil Surveys Can Help You* pamphlet series.
- Developed a Colorado *How Soil Surveys Benefit You* display for use at conferences, education activities, field tours, and county fairs.
- Prepared a videotaped interview of J. P. Pannell, a soil scientist who completed 50 years of service to the NCSS in April 1999. The video was used at meetings and with the presentation of awards to J. P.
- Prepared a nomination of J. P. Pannell for the NCSS Achievement Award and distributed the nomination write-up to Colorado soil scientists in NRCS, BLM, and USFS, and at Colorado State University.
- Highlighted the Centennial by soil survey office staff around the state in school presentations, at ARS field days, at a Final Acre Ceremony, and in presentations to scouting organizations.
- Distributed Centennial planning guides, bookmarks, and posters and use of the Colorado *How Soil Surveys Benefit You* display at FFA, 4H, and other youth activities by NRCS field and soil survey offices.
- Included article on the Centennial and Colorado Centennial activities in the July edition of the newsletter of the Colorado Chapter of the Soil and Water Conservation Society.
- Prepared a 4-poster display for use around the state using the posters prepared for national distribution.
- Gave eight 30-minute presentations (by four Colorado soil scientists) and exhibited four soil monoliths at the 1999 Colorado State Fair as a part of a multiagency (federal and state agencies) 4-ecosystem exhibit.
- NRCS and BLM soil scientists cooperated to prepare displays featuring the Centennial at the BLM National Service Center in Lakewood, Colorado.
- Used the Colorado *How Soil Surveys Can Benefit You* display at the MO6 Soil Scientist Workshop in September, 1999.
- Used the Colorado *How Soil Surveys Can Benefit You* display at the October, 1999 NRCS Employee's Association function in Lakewood.
- Used the Colorado *How Soil Surveys Can Benefit You* display and the National NCSS Centennial display at the Colorado Association of Soil Conservation Districts annual meeting in November, 1999.
- Distributed the NCSS Centennial Lapel Pins to the Colorado NCSS staff and selected partners.

MO6 To Deploy Soil Temperature Monitoring Devices

Steve Park, Soil Data Quality Specialist, Lakewood, CO

Most soil temperature studies, conducted by field soil scientists in MO6, have involved taking manual readings once a month. A sizable amount of time and driving can be incurred with taking manual readings. Winter readings are rarely collected because the sites are often not accessible during the winter months. This is the case for much of MO6. Winter temperature data is critical when trying to determine the presence of permafrost, or finding the frigid-cryic break. In addition, the collected readings have to be manually inputted into a spreadsheet program.

In early 1999 a search was initiated to find a device that:
1) would record multiple daily readings for over a year without a battery change; 2) would withstand wide temperature and moisture variations; 3) could be buried underground; 4) could upload recorded data to a data shuttle which would easily download the data to a personal computer; and 5) had an automated program that would summarize and graph the data. The HOBO
H8 4 Channel External Data Logger was selected after research and discussions with individuals from the NSSC, the USFS, and representatives of the Onset Computer Corporation.

During the next year HOBO soil temperature data loggers will be deployed in MO6 to record air and soil temperature data. The HOBO H8 4 channel data logger, manufactured by the Onset Computer Corporation, can record 32,520 measurements and has an operating range of minus 4 degrees F to 158 degrees F. Three data input cables (leads) will be used to record air temperature and soil temperature at depths of 4 inches and at 20 inches. The data loggers will be housed in a protective PVC casing and buried underground. The leads will extend from holes drilled in the protective casing. Burying the data loggers underground greatly reduces the risk of damage from vandals and hoofed animals. The location will be recorded using Rockwell GPS units. In addition, some sort of stake or rock cairn will be used to help visually locate the site.

Once a year the sites will be visited and the data uploaded to the data shuttle. If needed, the battery will be changed and the logger will be relaunched for another year. The data will be downloaded at the MO.

HOBO H8 4 channel external data logger with 3 soil temperature data cables attached.

Using the BoxCar Pro 4.0 program the data will be plotted and analyzed and then made available to the project offices and other interested parties.

Please contact *Steve Park, Soil Data Quality Specialist*, should you have any questions or comments.

The Latest from the Manuscript Scene

Tom Hahn, Soil Data Quality Specialist, Lakewood, CO

After much anticipation, editors at the National Soil Survey Center (NSSC) have completed work on soil survey manuscript pre-written material for use with tables generated from NASIS. We will be distributing hard copies (remember *"think pink!"*) to the field soon; in the interim the material can be viewed at the ftp site at NSSC (ftp://nssc.nrcs.usda.gov/pub/surveys/PWMNASIS/).

This NASIS pre-written material (PWM) will not be immediately useful for all project surveys. Only surveys that will be printing manuscript tables from NASIS need to use it. Any surveys planning to use SSSD or FOCS tables for publication will not need this new PWM. Of course, we will be phasing out the use of these tables, so ultimately all manuscript tables will be generated from NASIS.

The new material explains some of the new information provided in the NASIS interpretive tables, such as the new limitation classes (i.e. "slightly limited" and "somewhat limited") and the fuzzy values. It also explains the columns in the soil property tables that are different in NASIS, such as "Linear Extensibility" and Depth to Restrictions" columns. The text to accompany the Soil Moisture table was essentially re-written. The glossary and references have also been updated.